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# environmental assessment

for a development concept plan

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## EAST UNIT CAMPGROUND
## INDIANA DUNES

NATIONAL LAKESHORE / INDIANA

# ENVIRONMENTAL ASSESSMENT
for a
# DEVELOPMENT CONCEPT PLAN

## EAST UNIT CAMPGROUND
## INDIANA DUNES NATIONAL LAKESHORE
Indiana

U.S. Department of the Interior / National Park Service

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## SUMMARY

This environmental assessment analyzes alternatives for the development of a campground on a congressionally authorized site within Indiana Dunes National Lakeshore.

There are four alternatives, including a no-action alternative. Alternative A, the minimum requirements alternative, would provide for walk-in and conventional camping. Sewer and water would be provided with septic fields and wells. Alternative B would provide walk-in, conventional, and recreational vehicle (RV) campsites. Sewer and water would be provided through hookups to the Michigan City municipal system. Alternative C is similar to alternative B but proposes more RV sites, fewer walk-in sites, and laundry facilities.

All action alternatives would call for an amphitheater, nature trail, registration office, camp store, dump station, and group campsite.

In alternatives A and B, the campground would be operated by the National Park Service. In alternative C, the National Park Service would contract for a concessioner to both operate and share equally in development costs of the campground.

The analysis shows that the water and sewer proposal in alternative A is marginal at best. The only sound alternative is the Michigan City hookup (alternative B). In alternative C, the provision of 170 RV sites would require the draining and filling of some wetlands area on the site.

The National Park Service prefers alternative B for the following reasons:

Site access would be from US 12, which would eliminate traffic conflicts on US 20.

The entrance would be placed near the Calumet Bicycle Trail and South Shore Railroad stop, making it convenient for walk-ins.

The impacts on wetlands would be minimized.

RV and conventional camping would be effectively separated.

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## BRIEF DESCRIPTION OF THE PARK

Indiana Dunes National Lakeshore preserves an important remnant of what was once a vast and unique lakeshore environment resulting from the retreat of the last great continental glacier some 11,000 years ago. The park contains 15 miles of the Lake Michigan shoreline and 12,500 acres of land. Immediately inland from the beaches, sand dunes rise to almost 200 feet in a series of ridges, blowouts, and valleys. Extensive wetlands fill the depressions between the dunes.

Lake Michigan is one of the largest lakes in the world. The fine beaches of the national lakeshore, washed by the warmest waters of the lake, are the most significant recreation resource in the park. Swimming, sunbathing, boating, and fishing are popular uses of the lake and beaches.

The high dunes, wetlands, woodlands, and fields behind the beaches provide splendid opportunities for hiking, nature study, picnicking, photography, artwork, wildlife viewing, interpretive programs, winter sports, and group activities. Byways for bicycling and roads for leisure driving are abundant.

The vegetation in the national lakeshore is outstanding, with more than 1,000 different species of flowering plants and ferns. The dunes are a meeting place of northern and southern, prairie and woodland species.

The wildlife is also diverse. More than 300 different species of birds have been observed. The variety of environmental niches make the region an important habitat area.

The principal cultural resource is the Bailly homestead, settled in 1822 by Joseph Bailly, a French-Canadian furtrapper. A few of the structures remain. This homestead-trading post was the first of its kind in northwest Indiana. The site also includes a historic cemetery.

Other cultural resources include five homes originally displayed at the 1933 Chicago World's Fair, three experimental prefabrication houses constructed by the Lustron Corporation between 1949 and 1951, and the Chellberg farm, which is typical of the farms constructed during the late 1800s.

# REGION

## INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

| | |
|---|---|
| 626 | 20,073 |
| DSC | JULY 1986 |

## PURPOSE AND NEED FOR ACTION

Through Public Law 96-612 of December 1980, Congress authorized the purchase of additional lands for Indiana Dunes National Lakeshore. In report 96-557, written to accompany H.R. 2742, Unit III-D, a 182-acre parcel of land--the study area--was specifically identified by Congress for campground development.

Currently, Indiana Dunes State Park is the only regional public facility offering camping near the lakeshore. During the summer season (late May to September) the campground fills to capacity every weekend, and many potential campers are turned away. Several plans have addressed the need for additional camping facilities in the region. In 1983, the Northwestern Indiana Regional Planning Commission found a considerable amount of unsatisfied demand for camping facilities in the area. In 1985, the National Park Service contracted with Global Resorts, Inc., of Burtonsville, Maryland, to estimate the demand for camping in the area of the lakeshore. In February 1986, Global Resorts, Inc., produced the Campground Market Study for Indiana Dunes National Lakeshore, which shows a large unmet demand for both tent camping and RV camping in the national lakeshore area.

Based on Global Resorts' research, a 315-site camping facility is feasible. The site is within bicycling and walking distance to lakeshore beaches. It is important, however, that the development of the public transportation system proposed for the park provide access to the beaches from the campground to reduce traffic and parking pressure on the very limited beach parking and access in the Beverly Shores area.

At the present time, the park cannot support a year-round operation; therefore, an eight-month season from April through October is proposed.

## DEVELOPMENT CONCEPT ALTERNATIVES

### COMMON ALTERNATIVE ACTIONS

Certain actions are common to all the alternatives. Each conventional site would have a picnic table, a cooking grill, and a parking pad. RVs could use the sites, but there would be no electrical hookups and the sites would not necessarily be level. A group camping area for up to 50 people, with a cooking shelter, picnic tables, and a parking area for about 20 cars, would also be provided. Group camping would be by reservation only.

Water would be available at central locations within the campground. Water supplies would comply with the standards for public water supply as stated in the Safe Drinking Water Act (PL 93-523). There would be comfort stations, with flush toilets and hot showers, and a dump station. The campground would be connected to electric, gas, and telephone trunk lines that run along the site.

An amphitheater, a natural area with interpretive trails, a trail to the visitor center, a shuttle stop (to link with the park shuttle system), and foot access from the South Shore Railroad stop in the community of Beverly Shores would also be provided. All structures would be designed to be handicap-accessible according to the standards in the Architectural Barriers Act of 1968 (PL 90-480).

All alternatives would have a registration office at the entrance/entrances and a small convenience store. The convenience store would serve not only campers who bring their own gear, but would also offer rental equipment ranging from single items to complete camp setups for visitors unable or unwilling to bring their own equipment. Camping setups would be a fully furnished tent or trailer accommodating four to six people. Campers using this service would only need to provide their own food, clothing, and personal items. Bicycles would also be available for rent to facilitate beach access and use of the Calumet Bicycle Trail.

In all alternatives, the layout was designed to minimize impacts on neighbors along the park boundary. A sufficient buffer was left near private residences and St. Anne of the Dunes Church to deter any accidental trespass. Boundaries would be clearly marked to further protect the integrity of private property.

### ALTERNATIVE A (MINIMUM REQUIREMENTS)

This alternative would include 60 walk-in campsites and 110 conventional campsites. Vehicles would enter the campground from US 20 and register at the registration office. Walk-in campers arriving from the South Shore Railroad and bicycle campers from the Calumet Bicycle Trail would register and could rent equipment or setups at the camp store.

Water would be obtained from wells. Sewage disposal would be accomplished using a septic tank and subsurface absorption systems; five to seven absorption fields of 13,500 square feet each would be necessary.

The National Park Service would operate the campground.

## ALTERNATIVE B (PREFERRED ALTERNATIVE)

Alternative B calls for 100 conventional campsites, 25 walk-in campsites, and 40-50 RV sites. The RV sites would each have a level pad, an electrical hookup, a picnic table, and a cooking grill. The campground entrance would be from US 12, and all campers would register at the registration office near the entrance. Those campers desiring to rent camping equipment could do so at the camp store.

Flush toilets and hot showers would be available. Water and sewer would be provided by connecting to the Michigan City municipal system 4 miles away. Construction of a pipeline and lift stations would be required.

The National Park Service would operate the campground.

## ALTERNATIVE C

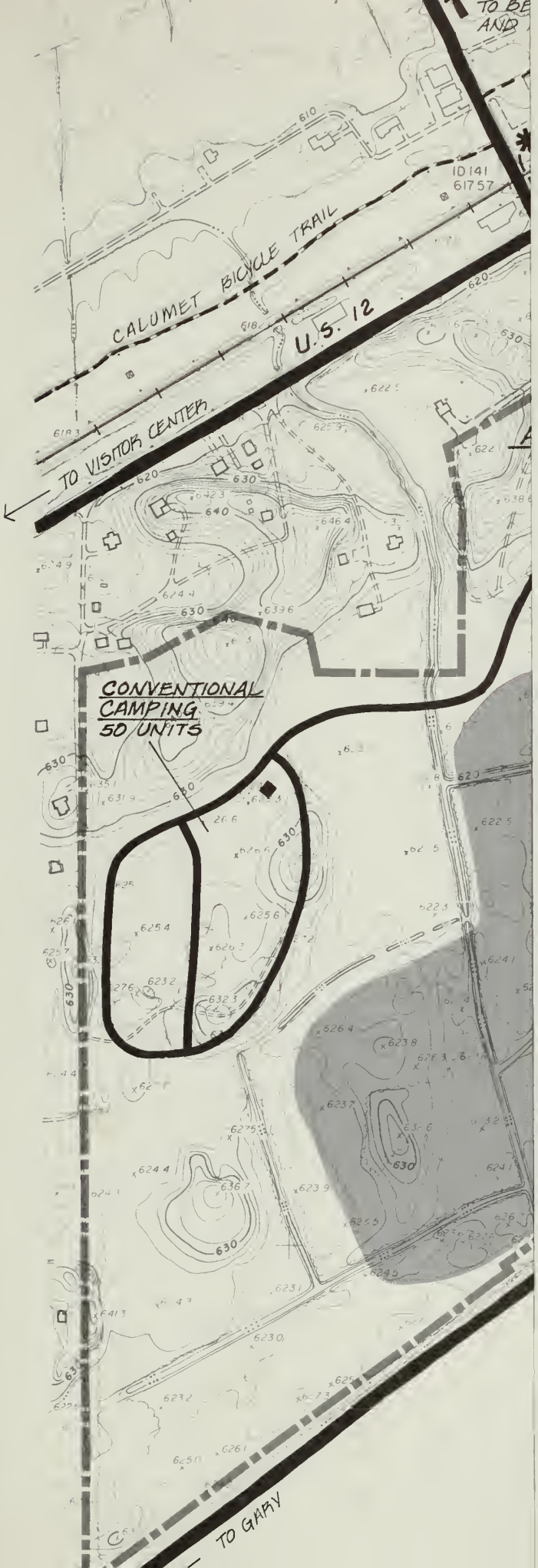
Under this alternative, 120 conventional campsites, 4-6 walk-in campsites, and 170 RV sites would be provided. As in alternative B, the RV sites would each have a level pad, an electrical hookup, a picnic table, and a cooking grill. Access would be from both US 12 and US 20, and campers would be able to register at either entrance. Arrangements for rental equipment would be made at the camp store.

In addition to flush toilets and hot showers, on-site laundry facilities would be available. Water and sewer would be provided by connecting to the Michigan City municipal system as in alternative B.

In this alternative, the National Park Service would contract with a concessioner to both operate and share equally in the development cost of the campground. The National Park Service would still be responsible for law enforcement and interpretive functions.

## NO-ACTION ALTERNATIVE

Even though Congress mandated that a campground be developed on this site, for comparison purposes a no-action alternative must be assessed. In this case, the site would remain as is, with no development of any kind.




# CAMPGROUND ALTERNATIVE A

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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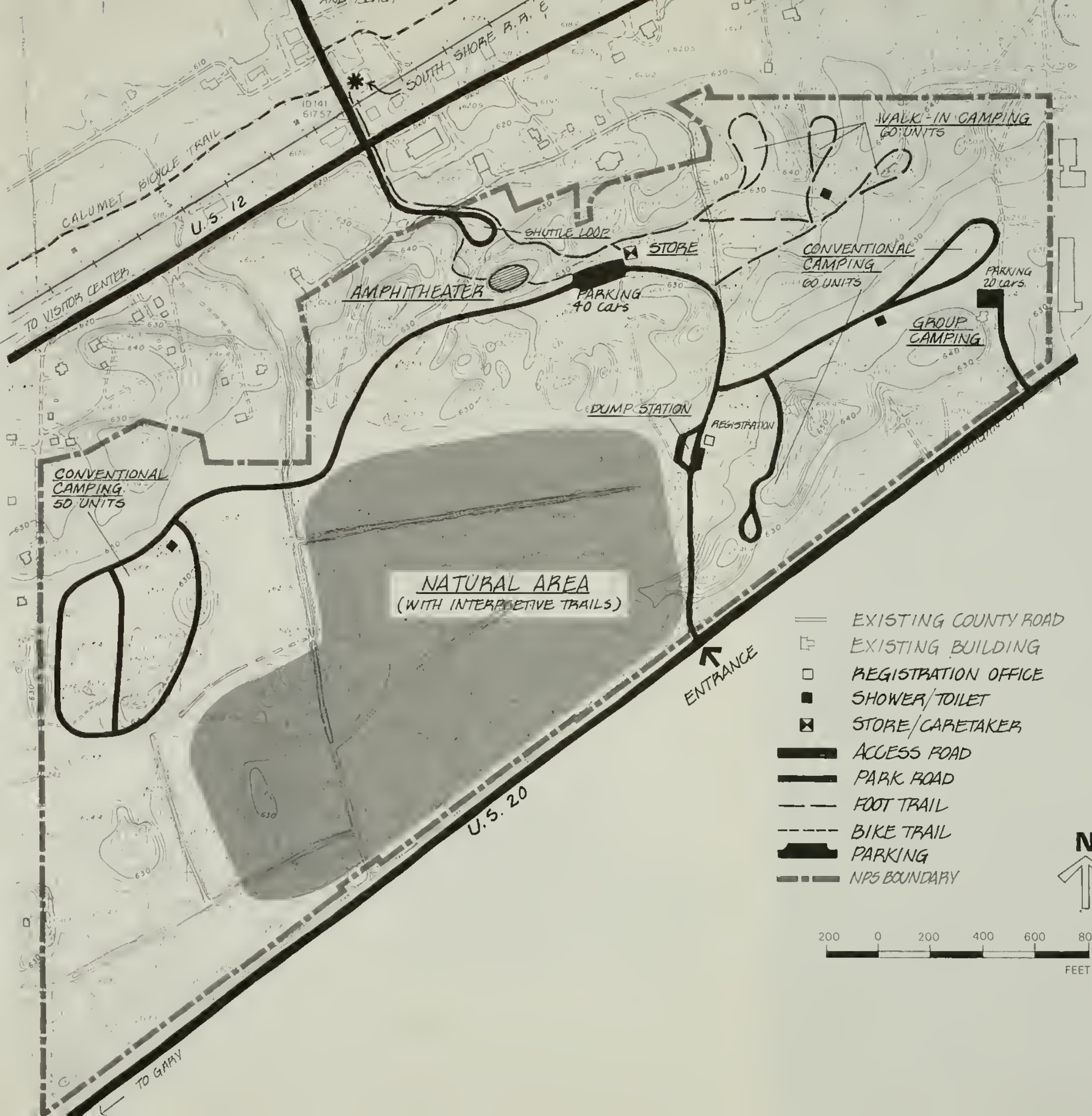
DSC | APRIL '86




# CAMPGROUND ALTERNATIVE A

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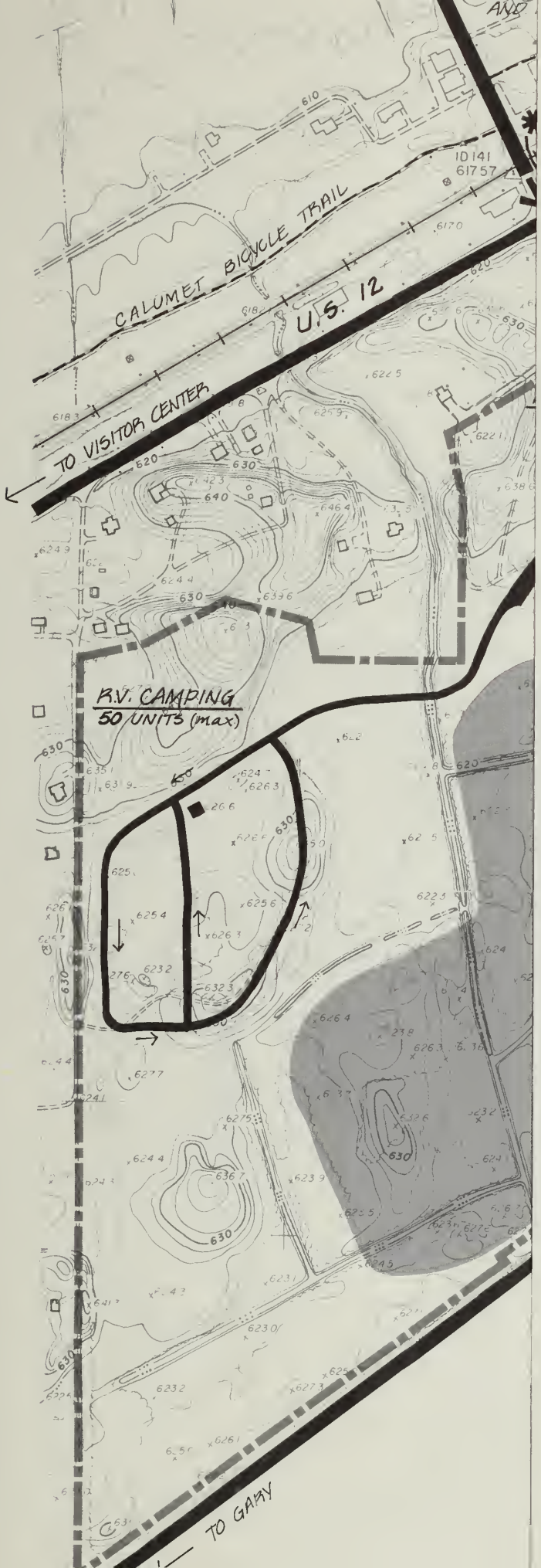


# CAMPGROUND ALTERNATIVE B

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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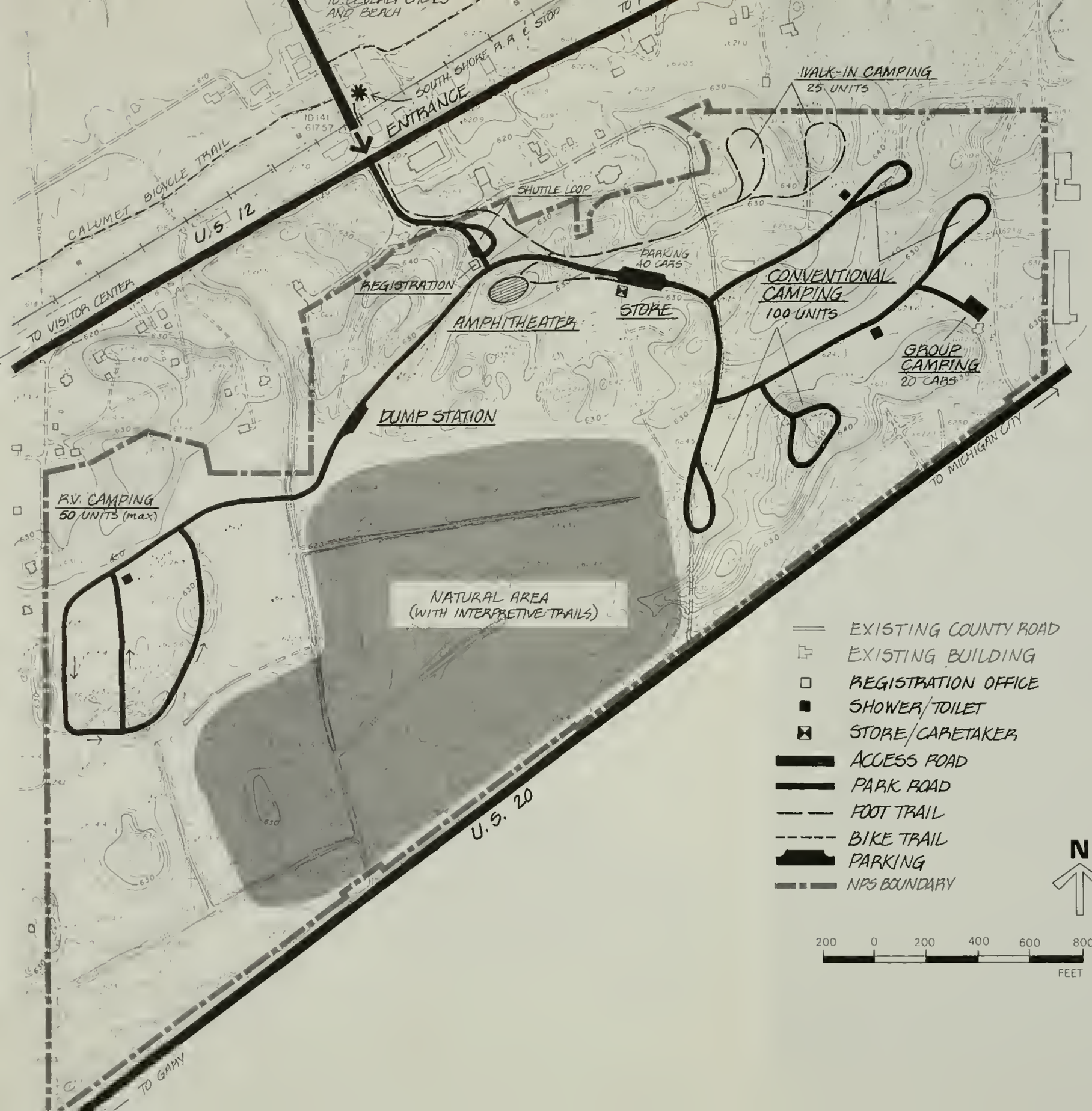
| DSC | APRIL '86 |




EXISTING COUNTY ROAD
EXISTING BUILDING
REGISTRATION OFFICE
SHOWER/TOILET
STORE/CARETAKER
ACCESS ROAD
PARK ROAD
FOOT TRAIL
BIKE TRAIL
PARKING
NPS BOUNDARY

N

200 0 200 400 600 800
FEET

# CAMPGROUND ALTERNATIVE B

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
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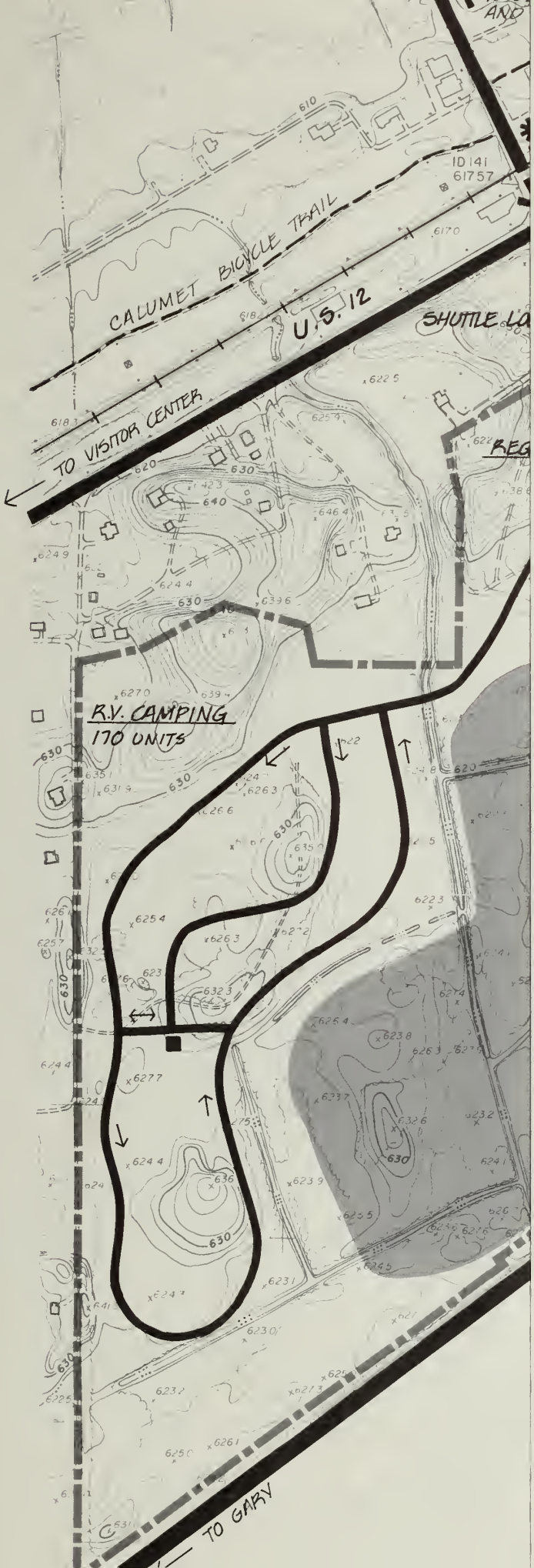


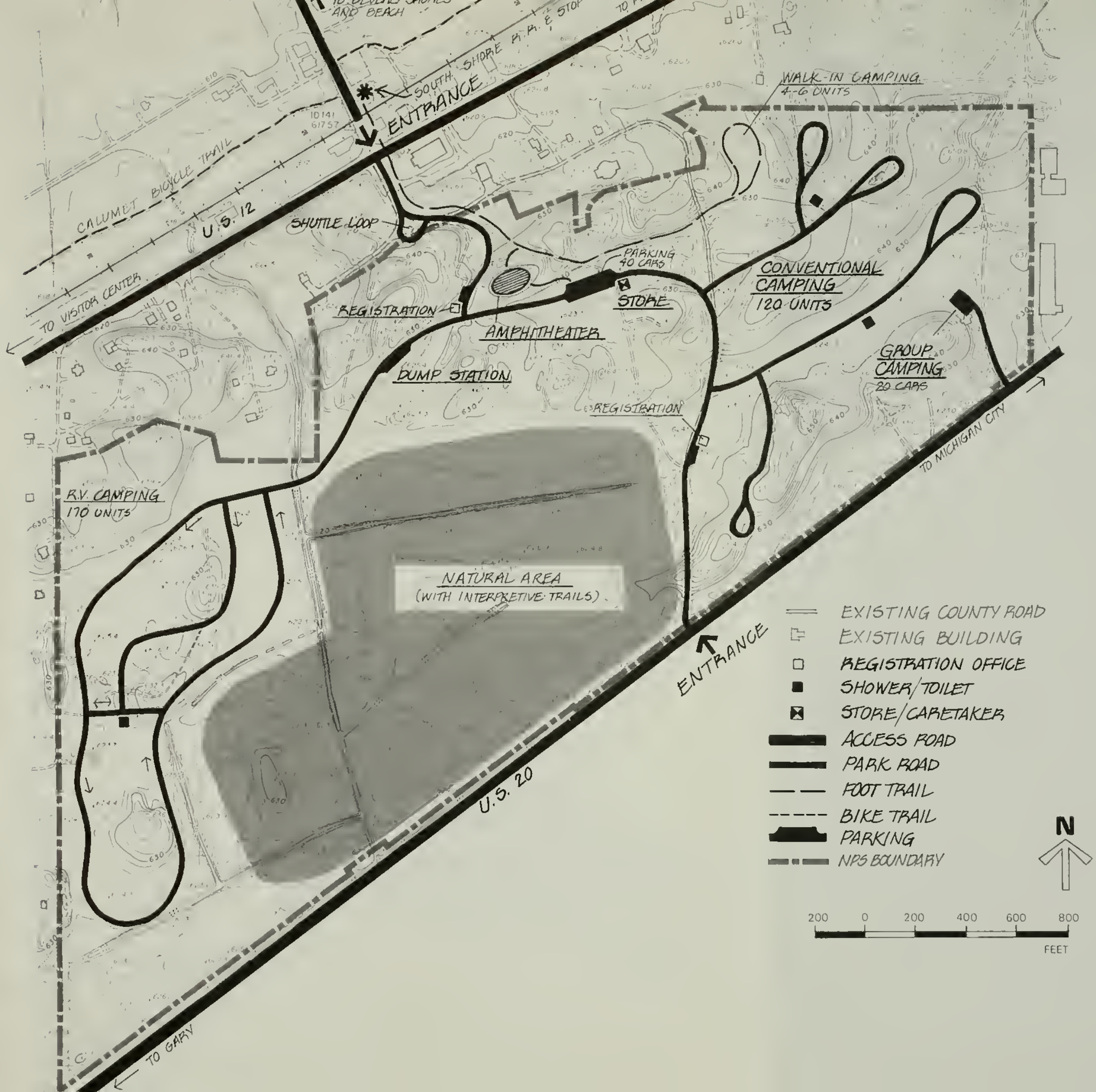

# CAMPGROUND ALTERNATIVE C

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

626 | 40,092A
DSC | APRIL '86




# CAMPGROUND ALTERNATIVE C

## DEVELOPMENT CONCEPT PLAN

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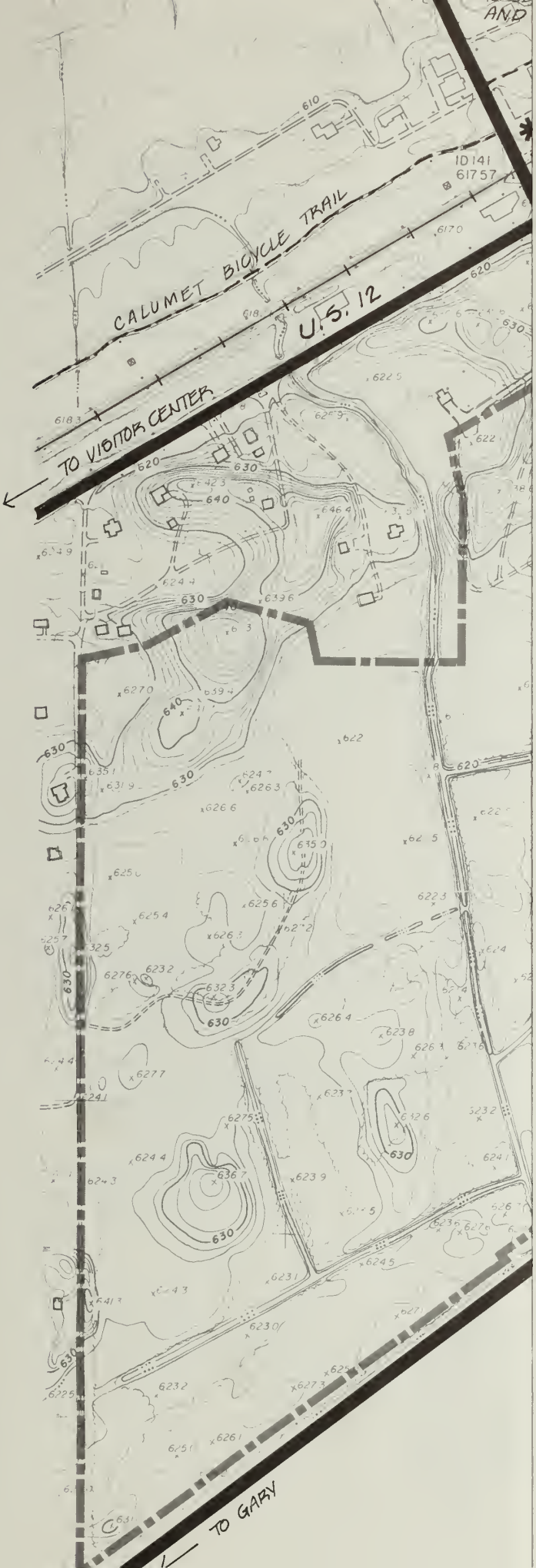


# CAMPGROUND
# NO ACTION

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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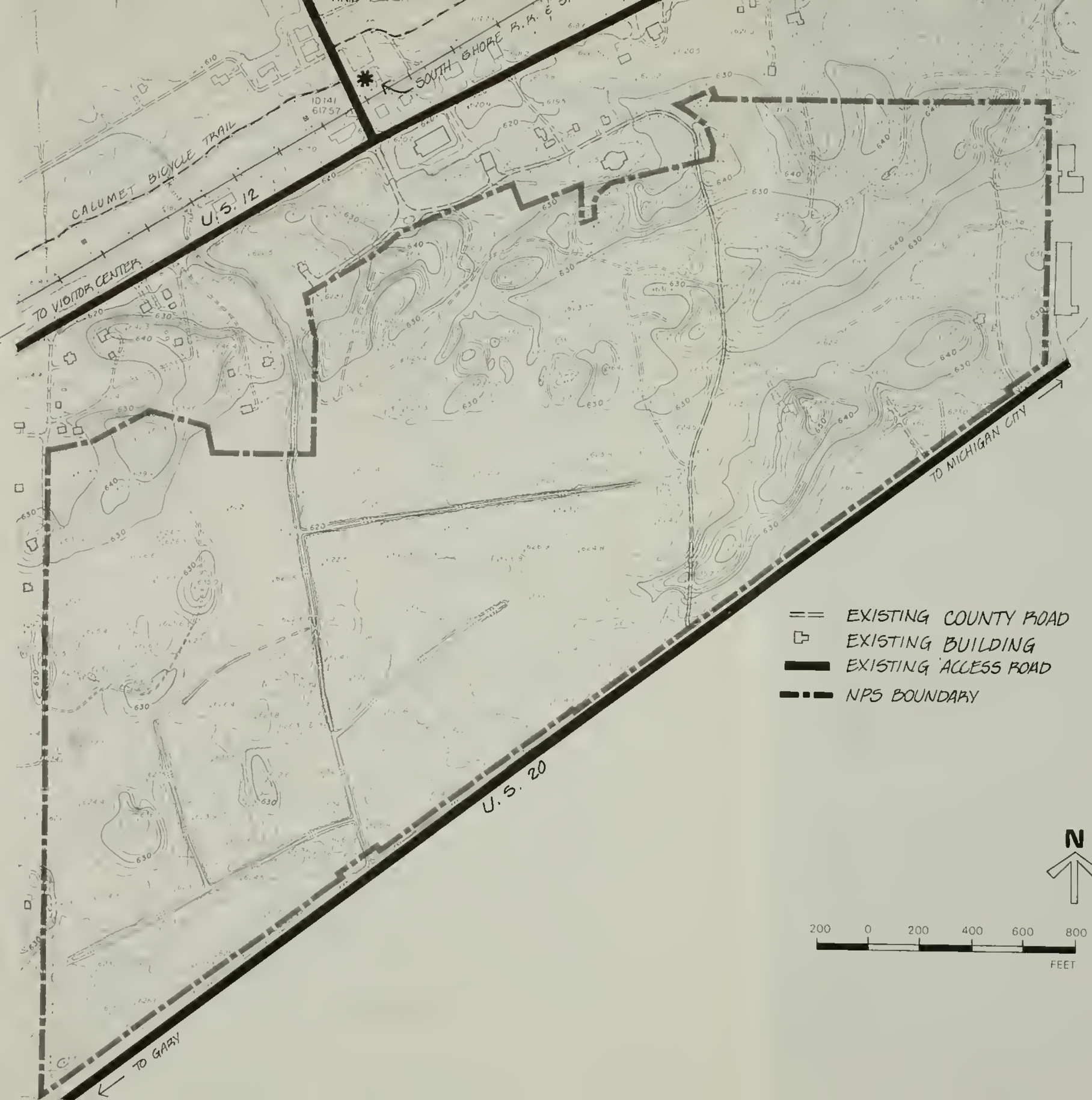
DSC | APRIL '86




EXISTING COUNTY ROAD
EXISTING BUILDING
EXISTING ACCESS ROAD
NPS BOUNDARY

N

200 0 200 400 600 800
FEET

# CAMPGROUND NO ACTION

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

626 | 40,093A
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## SUMMARY OF DEVELOPMENT COSTS

| | National Park Service* | Concessioner** |
|---|---|---|
| **Alternative A** | | |
| Restrooms/showers (3 @ $175,200) | $ 525,600 | |
| Registration office | 328,500 | |
| Amphitheater | 255,500 | |
| Interpretive trails | 17,500 | |
| Dump station | 65,700 | |
| Parking | 186,900 | |
| Telephone, electricity, gas | 373,800 | |
| Basic Facilities Subtotal | $1,753,500 | |
| Campstore/manager quarters | | $ 230,000 |
| Walk-in sites (60) | 87,600 | |
| Conventional sites (110) | 803,000 | |
| Group campsites | 175,200 | |
| Sewer | 1,062,900 | |
| Water | 541,700 | |
| Total | $4,424,000 | $ 230,000 |
| **Alternative B** | | |
| Basic facilities (same as A) | $1,753,500 | |
| Campstore/manager quarters | | $ 230,000 |
| RV sites (50) | 730,000 | |
| Conventional sites (100) | 730,000 | |
| Walk-in sites (25) | 36,500 | |
| Group campsites | 175,200 | |
| Sewer | 1,677,500 | |
| Water | 2,020,600 | |
| Total | $7,123,000 | $ 230,000 |
| **Alternative C** | | |
| Telephone, electricity, gas | $ 373,800 | |
| Amphitheater | 255,500 | |
| Interpretive trails | 17,500 | |
| Dump station | 65,700 | |
| Sewer | 1,677,500 | |
| Water | 2,020,600 | |
| Restrooms/showers (5 @ $103,500) | | $ 517,000 |
| Registration office (2 @ $194,300) | | 388,700 |
| Campstore/manager quarters | | 230,000 |
| RV sites (170) | | 1,466,300 |
| Conventional sites (120) | | 517,500 |
| Walk-in sites (5) | | 4,300 |
| Group campsites | | 103,500 |
| Parking | | 110,400 |
| Total | $4,411,000 | $3,338,000 |

*NPS costs are gross, Class C estimates (includes project planning, construction supervision, and contingencies); road costs are included in the per site cost of campsites.

**Concessioner costs are based on private sector construction estimates with a 15 percent contingency allowance added in.

ANNUAL OPERATING COSTS*

Alternatives A and B, NPS-Operated

| | |
|---|---|
| Law enforcment (2 FTE GS-5 park rangers) | $ 45,000 |
| Maintenance (3.25 FTE WG-5 maintenance workers) | 86,500 |
| Supplies | 10,000 |
| Utilities | 40,000 |
| Interpretation (1.4 FTE GS-5 interpreters--2 seasonals) | 40,250 |
| Total federal government expenses | $221,750 |
| If wells and septic systems are used, water quality testing and maintenance of the system would require 1 FTE WG-10 utility systems operator and repairer and .3 FTE for well maintenance | 51,750 |
| Total federal government expenses if well and septic system used | $273,500 |

Alternative C, Concessioner-Operated

National Park Service

| | |
|---|---|
| Law enforcement (2 FTE GS-5 park rangers) | $ 45,000 |
| Interpretation (1.4 FTE GS-5 interpreters) | 40,250 |
| Total federal government expenses | $ 85,250 |

Concessioner

| | | |
|---|---|---|
| Income: (year 3 - first year of full development) | $ 532,000 | |
| Expenses: | | |
| Management costs | | $ 140,000 |
| Cost of sales | | 94,000 |
| Estimated franchise fee (3%) | | 16,000 |
| Total | | $ 250,000 |
| Cash Flow Before Debt Service | $ 282,000 | |
| Construction Loan (interest only)** | | 250,000 |
| Net Pre-Tax Cash Flow | $ 32,000 | |

*Figures include overhead expenses.

**Permanent loan would begin in year 4. Net pre-tax cash flow would rise to approximately $75,000 in year 6, with future increases in subsequent years.

## AFFECTED ENVIRONMENT

The 182-acre study area consists of stable, forested backdunes of the Glenwood beaches of ancient Lake Chicago. It is bordered by US 20 on the south and US 12 on the north. Private residences and a church lie between the site boundary and US 12. The site is currently accessible from two dirt roads off US 20, a dirt road off US 12, and a paved entrance at the stoplight across from Beverly Shores on US 12.

The South Shore Railroad provides rail transportation between Chicago, Illinois, and South Bend, Indiana. The Beverly Shores station, located at Broadway across US 12 from the study area, would provide direct access to the campground for visitors arriving and departing on the South Shore Railroad. Users of the Calumet Bicycle Trail would have access to the site from the stoplight on US 12 at Broadway.

Certain portions of the parcel have a long history of human disturbance. A golf course was developed in Beverly Shores in the 1920s. The old fairways are still recognizable by the long, grassy openings in the woodlands to the north; also evident is the extensive system of drainage ditches for the golf course. A large network of roads cuts through the north part of the area, and several small trash dumps are scattered along the roads. There is evidence of logging in only a small, localized portion of the area. The disturbances noted are limited to their extent, and many areas have little, if any, visible signs of disturbance except for an occasional footpath.

### NATURAL RESOURCES

#### Air Quality

Indiana Dunes National Lakeshore is located in an area of numerous pollutant sources. The Chicago-Gary industrial complex, with its millions of inhabitants, emits large quantities of pollutants into the atmosphere daily. The sources of these pollutants are stationary as well as mobile. Stationary sources include the iron and steel industries, chemical manufacturers, petroleum refineries, utilities, and space heating. Mobile sources in this highly populated area are the millions of motor vehicles as well as railroad locomotives, aircraft, and marine vessels.

The proximity of the area to Lake Michigan causes a diurnal effect on the levels of pollution. During the day the cool, denser sea breezes off the lake move inland taking the place of the warmer, rising land air. The flow generally reverses with nightfall as the cooler ground temperatures create a land breeze, which moves toward the lake, displacing the warmer sea air. One adverse effect of this diurnal cycle of land-sea breezes is that several times a year pollutants that have been removed during the day are blown back in from the lake at night, thus aggravating the pollution conditions of the region.

## Soils

Four soil types are found in the study area. Adrian muck drained and dune land have only slight limitations for recreational developments. Oakville fine sand is typically on slopes of 4 to 12 percent and is well drained. Moderate limitations for dwellings exist; however, there are severe limitations for septic tank absorption fields because of poor filtering qualities of the soil. Maumee loamy sand has severe limitations for buildings, roads, and septic systems because of slow surface runoff, ponding, and high water tables. The limitations do not preclude construction of roads, but do require special measures and manipulation of the site. A commonly used technique for road construction in this type soil is to place a geotextile material on the soil, followed by 18 to 24 inches of select borrow. The hazard of groundwater pollution exists if septic systems are used in either of these soils.

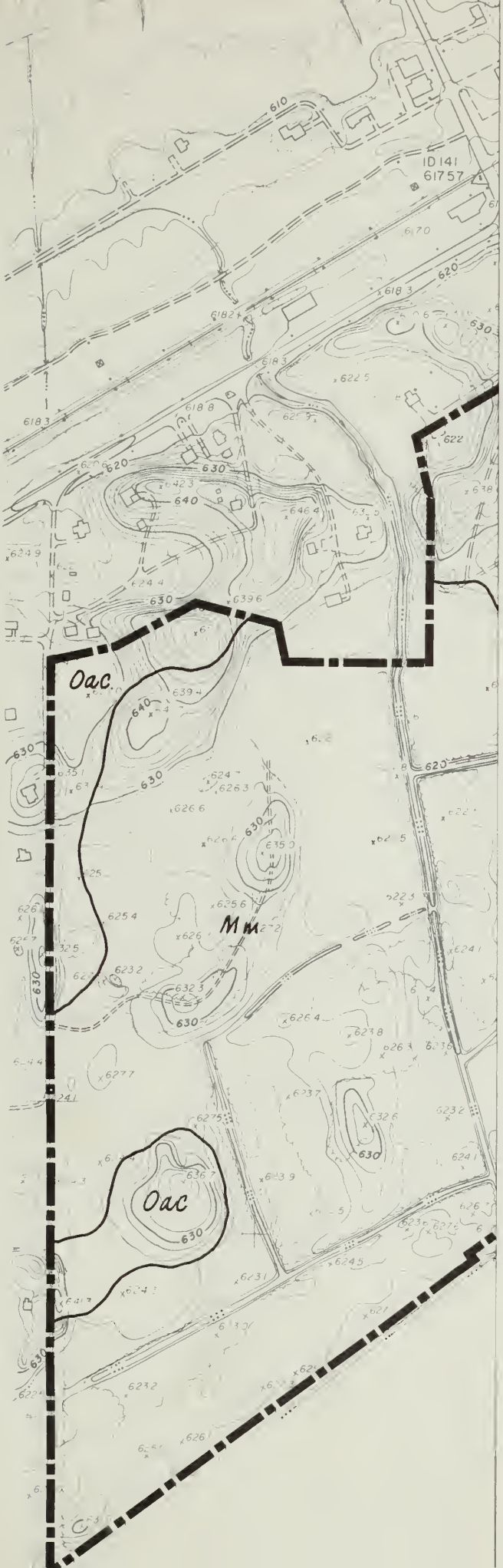
## Hydrology

Drainage ditches have significantly affected the hydrology of streams in and around the lakeshore. Ditches were constructed between 1875 and 1925 to lower the water table so that the former wetlands would be acceptable for agriculture and other uses. Before Derby ditch was constructed to drain wetlands for the now defunct Beverly Shores golf course, no streams drained the study area into Lake Michigan. The drainage ditches on the site are no longer maintained.

## Vegetation and Wildlife

The eight largest plant communities in the study area include red maple successional forest (70 acres), black oak scrub (40 acres), black oak forest (36 acres), successional grassland (21 acres), little bluestem prairie (13 acres), shrub successional (6 acres), razed residential (2 acres), and bare sand (2 acres). Prickly pear cactus is found in the project area and is widely distributed throughout the park. There are two small areas of the rare Betula papyrifera (paper birch)--one is in red maple successional forest in the southern portion of the parcel, and the other is in shrub successional lowland in the northeast corner of the parcel (Fox 1985).

Most of the animals of the forested dunes are typically those found in the eastern woodlands, forest/field edges, fence rows, and open fields. Chipmunks, fox and red squirrels, opossum, raccoon, skunks, cottontail rabbit, woodchucks, red fox, white-footed mouse, and white-tailed deer. This habitat also supports garter snakes, hognose snakes, box turtles, Fowler's toads, and red-backed salamanders. The woodland habitat contains a variety of areas for birds with special preferences, i.e., underbrush and thicket, lower tree branches, and treetops. Birds associated with this area include woodpeckers, kinglets, bluejays, robins, cardinals, brown thrasher, great-crested fly-catcher, red-eyed vireo, nuthatch, and chickadee.




# SOILS

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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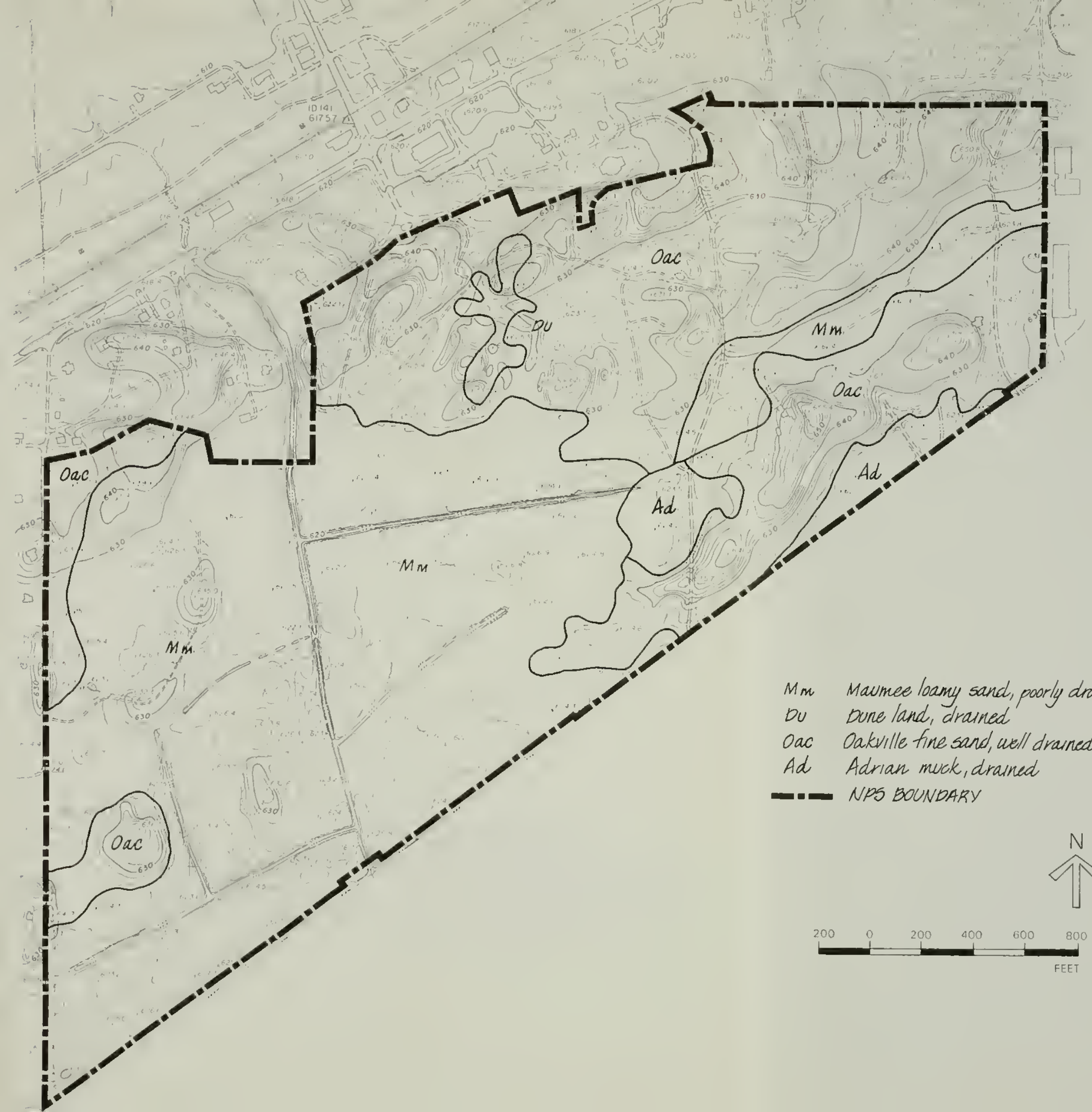


Mm Maumee loamy sand, poorly drained
DU Dune land, drained
Oac Oakville fine sand, well drained
Ad Adrian muck, drained
NPS BOUNDARY

N

200 0 200 400 600 800
FEET

# SOILS

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

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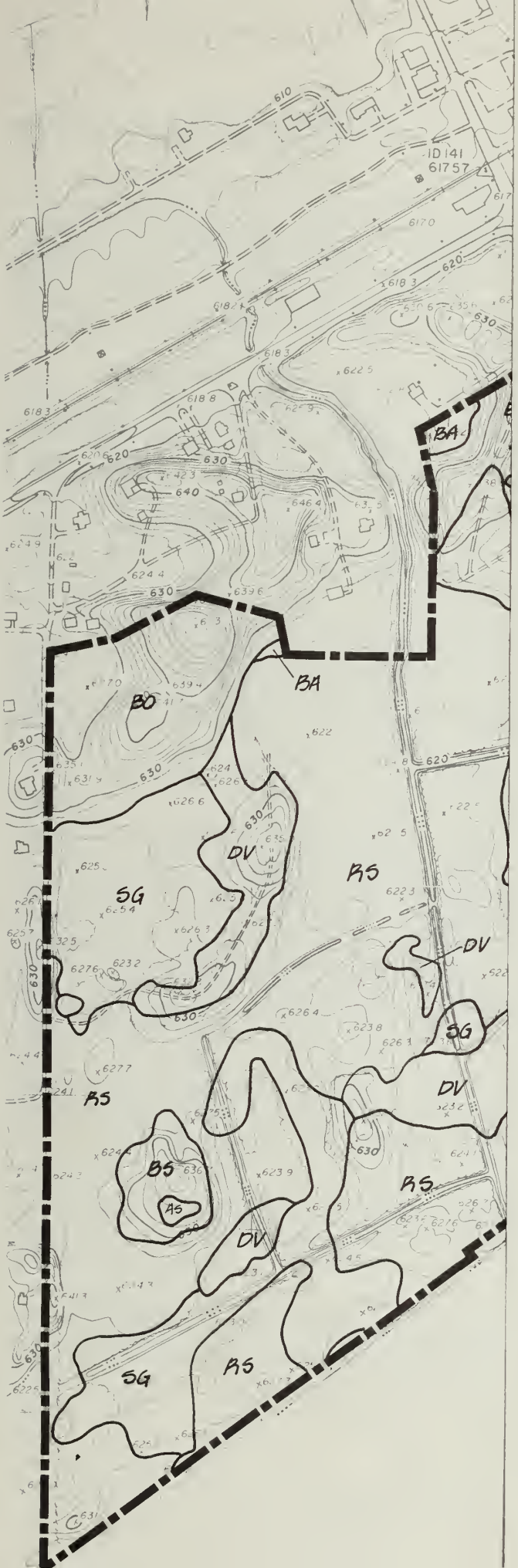


# VEGETATION

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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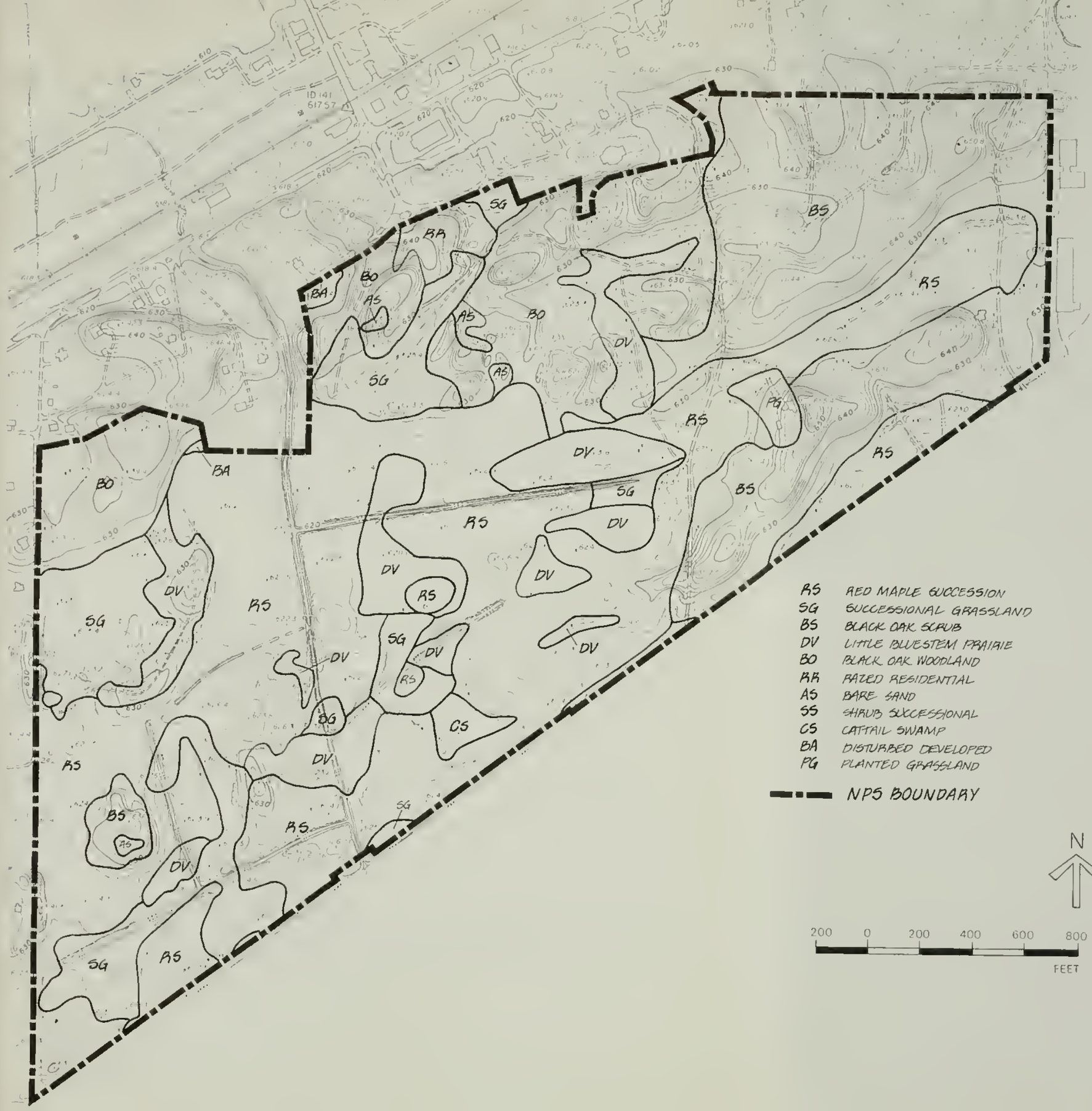


RS RED MAPLE SUCCESSION
SG SUCCESSIONAL GRASSLAND
BS BLACK OAK SCRUB
DV LITTLE BLUESTEM PRAIRIE
BO BLACK OAK WOODLAND
BA RAZED RESIDENTIAL
AS BARE SAND
SS SHRUB SUCCESSIONAL
CS CATTAIL SWAMP
BA DISTURBED DEVELOPED
PG PLANTED GRASSLAND

NPS BOUNDARY

N

200 0 200 400 600 800
FEET

# VEGETATION

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

626 | 20,074
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## Threatened and Endangered Species

The U.S. Fish and Wildlife Service's list of threatened and endangered species includes the following species found in Indiana--bald eagle (Haliaeetus leucocephalus), American peregrine falcon (Falco peregrinus anatum), Indiana bat (Myotis sodalis), and several species of freshwater clams. No critical habitat for any of these species is present in the project area. The peregrine falcon and the bald eagle are occasional migrants through the area and are unlikely to be affected by the project.

Three plant species that are candidates for the federal list of threatened and endangered species are known to be present in the national lakeshore--aster (Aster furcatus), Pitcher's thistle (Cirsium pitcherii), and fragrant sumac (Rhus trilobata var. aromatic arenaria). No critical habitat for any of these species is present in the project area.

Betula papyrifera (paper birch) was the only state listed species discovered in the area. Betula, threatened in the state of Indiana, was found in two locations--in red maple successional forest in the southern portion of the parcel, and in shrub successional lowland in the northeast corner of the parcel. In the former community, there are 10-20 mature trees found growing in a small portion of the woods. In the lowland, there are several small trees present (Fox 1985). Elsewhere in the park, Betula is rare in the swamp complex of Dune Acres, but a large population is present in a wooded swamp in Beverly Shores.

## Wetlands

Wetlands, occurring throughout the Calumet Lacustrine Plain, are abundant between the backdunes and a zone one-half mile south of the backdunes. Those on the site fall under the Palustrine system of wetland classification. The Palustrine system groups the vegetated wetlands traditionally called by such names as marsh, swamp, bog, fen, and prairie. It also includes the small, shallow, permanent, or intermittent water bodies often called ponds. Three classes of the Palustrine system described below are found on the site and are shown on the Wetlands map.

Scrub shrub wetlands include areas dominated by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.

Palustrine forested broadleaf deciduous is characterized by woody vegetation that is 20 feet tall or taller. Three water regime modifiers apply to this class:

> Semipermanently flooded. Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land surface.

Saturated. The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.

Temporarily flooded. Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season. Plants that grow both in uplands and wetlands are characteristic of the temporarily flooded regime.

Emergent wetlands are characterized by erect, rooted herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for the majority of the growing season in most years. These wetlands are usually dominated by perennial plants.

### Floodplains

The project area is not in a floodplain. There are, however, artificial drainage ditches in the area.

### Prime and Unique Farmlands

No prime farmlands or farmlands of state importance are present in the study area. Maumee sand is considered to be of state importance if it is drained and in production, but the Maumee sand in the study area does not meet these criteria. The previously noted drainge ditches do not prevent most of the Maumee sand from being seasonally wet.

## CULTURAL AND ARCHEOLOGICAL RESOURCES

No properties on or eligible for the National Register of Historic Places are found in the project area. The nearest eligible structures are the World's Fair and Lustron houses over 1 mile away along the lakeshore.

The prehistoric record of the Indian occupants of the lakeshore (prewhite contact) is poorly known. The shifting nature of the sand dune topography not only makes surface survey difficult but also tends to alter the cultural context of those remains that are recovered. Man-made alterations of the past 150 years have also contributed to the loss of evidence of earlier occupations. Studies of the 5,000-acre park area have located archeological remains in the Bailly Unit, the inland Dunes Unit, and in Indiana Dunes State Park (NPS 1968, 1974a, 1974b). In all, 12 sites have been identified (NPS 1968). With one exception, the sites are surface scatters that appear to represent temporary occupations (NPS 1968).

The project site has not been surveyed for archeological resources. Once an alternative has been selected as the NPS proposal, a survey will take place when the project moves into the comprehensive design stage.

# WETLANDS

## DEVELOPMENT CONCEPT PLAN

INDIANA DUNES NATIONAL LAKESHORE

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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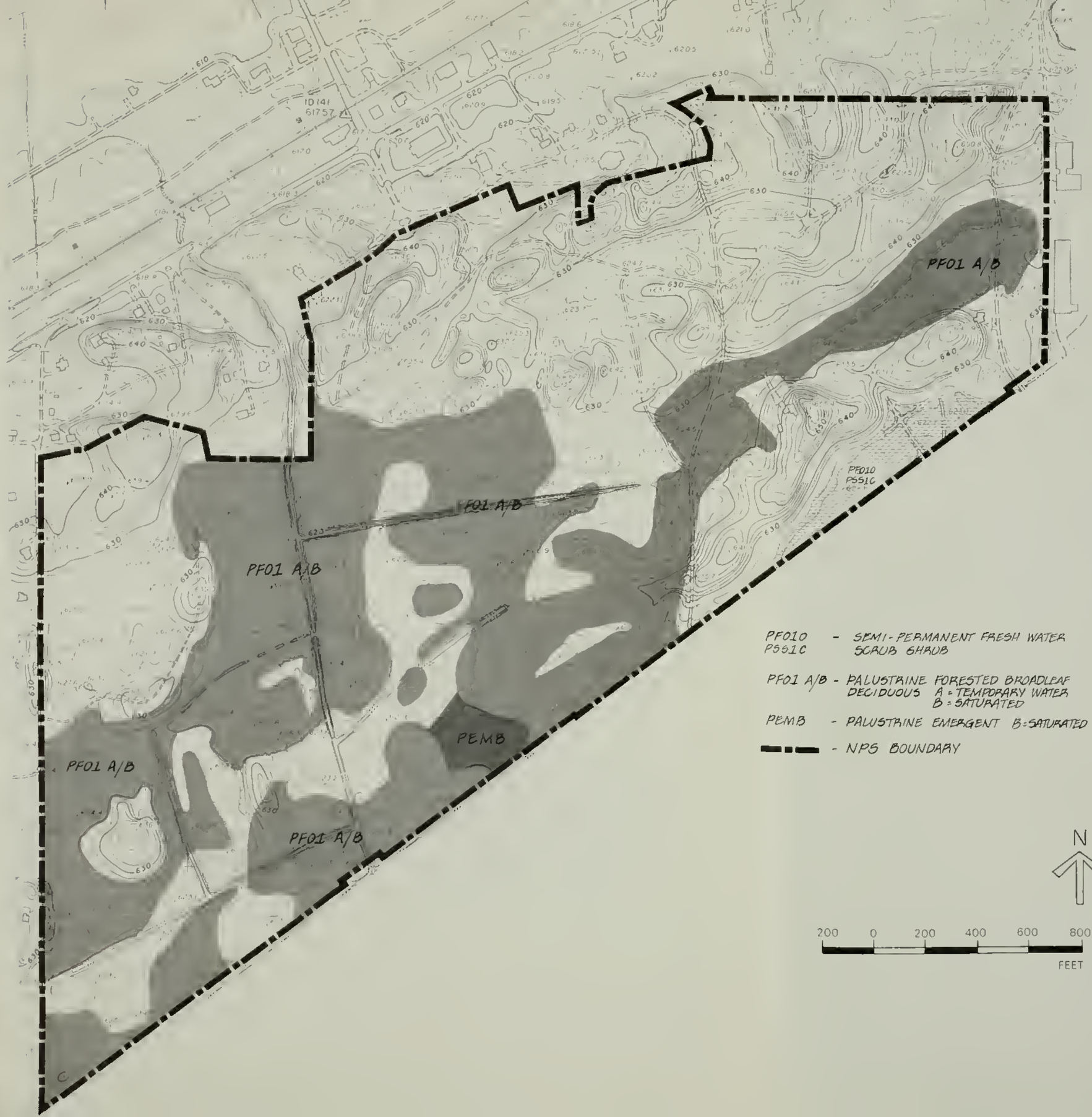


PF010 - SEMI-PERMANENT FRESH WATER
PS51C SCRUB SHRUB

PF01 A/B - PALUSTRINE FORESTED BROADLEAF DECIDUOUS A = TEMPORARY WATER B = SATURATED

PEMB - PALUSTRINE EMERGENT B=SATURATED

- NPS BOUNDARY

N

200 0 200 400 600 800

FEET

# WETLANDS

## DEVELOPMENT CONCEPT PLAN

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## VISITOR USE

Over the last several years, visitation to the national lakeshore has increased at approximately 9 percent per year. A total of 1,800,300 visits were recorded in 1985.

The majority of visitors to the lakeshore are from the immediate Great Lakes region. Nine out of 10 visitors are from Illinois (50 percent) and Indiana (40 percent), with 45 percent from Chicago and 35 percent from the surrounding counties of Lake, Porter, and LaPorte.

There are no overnight accommodations within the lakeshore; however, the adjacent Indiana Dunes State Park contains a 311-site campground. Forty percent of the sites offer full hookups for RVs, and the remainder are used primarily for tent camping. The campground is used heavily throughout the peak season. Between mid-May and Labor Day, the weekend (Thursday through Saturday) occupancy rate is 100 percent. The overall occupancy rate for this season is 54 percent. Approximately 25,000 camper days are recorded annually.

The 1986 campground market study by Global Resorts, Inc. found that within a 75-mile radius of Indiana Dunes National Lakeshore there are 6,000 public and private campsites and 60,000 RVs in ownership. Based on the population characteristics of the region from which visitors originate, the general economic ability of visitors to participate in camping, and the estimated number of RVs present in the primary market area, a campground of the nature proposed in the alternatives would be feasible and could expect an occupancy rate comparable to the state park's campground.

While the demand for RV sites is great, state park figures indicate that the demand for conventional sites is also great. The demand for walk-in camping was not measured; however, one of the lakeshore's management objectives is to encourage the use of alternate transportation to the lakeshore. This includes bicycles and the South Shore Railroad. Walk-in campsites were proposed to serve this segment of visitors. Thus, the mix of camping proposed in the alternatives is based not only on market area demand but also on meeting management objectives.

Site characteristics and environmental considerations were also significant in determining the mix of camping. The west side of the site is fairly level and would require a minimum of topographic manipulation to provide the level sites necessary for RVs. The east side of the site is composed of dune ridges and is more suitable to the development of conventional sites, which require less manipulation of the topography. The walk-in campsites could be converted to conventional sites with relative ease should they prove to not meet visitor needs as anticipated.

## SOCIOECONOMIC ENVIRONMENT

The population around the national lakeshore has generally grown faster than the state or the major metropolitan areas. While the states of Indiana and Illinois exhibited population growth of 6 and 3 percent, respectively, during the 1970s, and the cities of Chicago, Gary, and Michigan City exhibited population declines, the counties that surround and make up the lakeshore grew at rates as high as 35 percent. The towns of Chesterton and Portage grew 38 and 43 percent, respectively, during the 1970s. Much of this growth has resulted in an increasing visitor base for the lakeshore and for the proposed campground.

The focal point of the area's economy is the production of steel for local, regional, and national markets. The major steel producers--U.S. Steel, Inland Steel, Youngstown Sheet and Tube, Bethlehem Steel, and Midwest Steel--are located in northern Lake and Porter counties. The Bethlehem Steel and Midwest Steel plants lie within the general boundaries of the national lakeshore. Manufacturing is the only export sector of the northwestern Indiana economy. The remaining sectors--wholesale/retail, services, government, and construction--supply goods and services only to the local economy.

The local communities of Chesterton, Beverly Shores, and Portage have a dozen restaurants, limited motel accommodations, several service stations, and ancillary businesses such as grocery stores. The immediate area where the campground entrance would be located has a limited service station and a lounge and liquor store. There are three fast-food restaurant chain establishments in Chesterton.

Michigan City, approximately 10 miles from the development site, has a population of 37,000 and a full range of shopping, restaurants, motels, and businesses commensurate with a municipality of its size. Accordingly, the Michigan City area would more than likely receive an economic benefit from the proposed campground because more facilities are readily available.

## ENVIRONMENTAL CONSEQUENCES

### IMPACTS COMMON TO ALL ALTERNATIVE ACTIONS

Vegetation within the site would be removed for road and building construction. The visual quality of the site as viewed from US 12 and US 20 should remain unchanged. Most of the proposed roads would be located to take advantage of the existing road system, thus reducing the amount of vegetation removed. Additional grading and widening would be required. The soil would be compacted, and the road surface would be impervious to water, increasing water runoff in the area. Minor accelerated erosion would take place in these disturbed areas until drainage structures were fully operational and vegetation was recovered in cleared areas. The area proposed for the group camp has been previously disturbed by developments that have been demolished and removed. Grading for a parking area would require the removal of existing grassy vegetation. The gravel surface of the group camp parking area would allow some water absorption and would not increase water runoff. The equipment used in the construction of additional roads and the utility infrastructure would cause a temporary increase in noise and dust, resulting in a short-term disturbance to adjacent landowners. The acres that would be affected by implementation of each alternative are shown below.

Acres Affected by Alternative

| | Alternative A | | Alternative B | | Alternative C | |
|---|---|---|---|---|---|---|
| | UD* | D** | UD* | D** | UD* | D** |
| Group camp | | .1 | .1 | | | .1 |
| Tent camping | | | | | | |
| Roads | 1.2 | .8 | .2 | .8 | .2 | .8 |
| Sites | .6 | | .6 | | .8 | |
| RV camping | | | | | | |
| Roads | | | 1.1 | | 1.1 | .3 |
| Sites | | | 1.7 | | 2.3 | |
| Interior circulation roads | .6 | .5 | .1 | .7 | .4 | .3 |
| Trails, walk-in camping | .4 | .1 | .2 | .1 | .1 | .1 |
| Amphitheater | .5 | | .5 | | .5 | |
| Store | .5 | | .5 | | .5 | |
| Registration and dump facilities | .5 | | .5 | | .5 | |
| Subtotal | 4.3 | 1.5 | 4.5 | 1.6 | 6.4 | 1.6 |
| Total | 5.8 | | 6.1 | | 8.0 | |

*Undisturbed
**Disturbed

The wetland area in the southwestern portion of the project site has been designated as a natural area in each of the alternatives. In all alternatives except C, the only development allowed here would be trails, which would be designed to avoid the state-threatened paper birch and not adversely affect the wetlands.

Areas near campsites, trailheads, buildings, and the amphitheater would be affected by increased foot traffic. The impacts of trampling would range from complete exclusion of vegetation to slight shifts in species composition.

Vegetative alterations due to construction activities would result in the displacement and destruction of resident invertebrates and small vertebrates. Development of an area usually causes the displacement and disruption of small mammals and birds.

At full operation, campground visitors would spend about $1,000,000 each year in the local area. Approximately $400,000 of this amount would remain in the form of salaries and retained earnings; the remainder would flow out of the local economy to purchase goods and services as a cost of doing business. During construction, between $5.4 million and $7.1 million would be spent. Between $1.9 million and $2.5 million would remain in the local economy. This does not include any new business growth that would undoubtedly occur with the increased awareness and use of the facility. Construction contracts would provide short-term economic benefits to the surrounding communities.

The 1982 average daily traffic count on US 12 between Kemil Road and US 421 was 4,200 vehicles. US 20 between county road 100 and state road 520 averaged 8,700 vehicles for the same period. Impacts on existing traffic volumes have been analyzed for the maximum development alternative, alternative C, which proposes 170 RV campsites and 120 tent campsites. Assuming full occupancy of the 290 sites during the peak season and an average daily turnover rate of 3 (includes day trips) and 30 daily administrative trips (maintenance, security, interpreters, etc.), 900 vehicles per day would be added to existing traffic volumes. If all the campground traffic were to use US 12, there would be a 21 percent increase in daily traffic volume from existing conditions (total 5,100 vehicles per day). This is well within the estimated maximum capacity of 7,500 to 9,000 vehicles per day for a two-lane highway. Conversely, if all the campground traffic were to use US 20, there would be a 10 percent increase from existing conditions. These figures are for peak season use for the maximum development alternative. The actual traffic increase experienced over the eight-month operating season, including days in which the campground would operate at less than capacity would be less. The additional traffic generated from campground users would probably not occur during peak commuter periods for US 12 and US 20, thereby reducing some of the impact from increased traffic. The traffic impacts for the other alternatives would be less than for alternative C.

While emissions from campers' vehicles and campfires undoubtedly produce pollutants, the impacts would be negligible in proportion to the present pollution sources (stationary and mobile).

Adjacent landowners and residents of Beverly Shores may be adversely affected by increased traffic and parking on city streets and in city parking areas. The implementation of a shuttle system and the improvement of bike/pedestrian trails and walkways in the area would mitigate possible impacts.

The development of additional sites would assist in satisfying the demand for camping facilities. Revenues from camping fees would provide income to the federal general revenue fund. More personnel would be needed for Indiana Dunes National Lakeshore to handle increased demands for security, interpretation, and administration. Interpretive facilities and programs for the national lakeshore would be expanded, which would require a shift in present programs and staff.

## IMPACTS OF ALTERNATIVE A

The soil in the western portion of the site is Maumee loamy sand, which is poorly drained and has severe limitations for construction of roads. However, within this generalized area, there is a higher and consequently better drained area that does not have as severe limitations. The 50-site tent area is located in this area. Road construction would still require special techniques such as elevation of the road with fill, but the impact would be much less than in the lower areas subject to frequent ponding.

The soils in the study area have severe limitations for sewage disposal due to poor filtering qualities. This leads to a high potential for groundwater pollution. The five to seven filter beds that would be required for the campground would occupy most of the space available on the west side of the site. Development would be prohibited on the filter beds. This would reduce the number of sites available in the camping area. The location of the dump station across from the registration office may cause congestion of visitors, and odor from the dump station may be an occasional problem.

The aquifers in the area are erratic, and the higher ones may be of questionable quality. The Town of the Pines, Indiana: Water and Sewer Feasibility Study (Baxter and Woodman 1985) contained a letter from the Indiana Department of Natural Resources, which stated "The upper sand aquifer system can yield enough water to meet your demands, however it is polluted. I do not feel the lower sand and gravels mixed in with the lacustrine silts and clays can support a high capacity well because they are too discontinuous and hydrologically isolated." Therefore, in view of the inadequacy of the aquifers in the area immediately east of the study site, a public groundwater supply is not considered feasible.

The entrance from US 20 would be easy for visitors to find and would minimize traffic in Beverly Shores. US 20 is a four-lane highway with a speed limit of 55 miles per hour. Many large trucks use this highway. There are no turn lanes, so it would be hazardous for motorists attempting to enter or exit the campground. A traffic light or turn lanes could be provided but would be expensive.

A single entrance would provide good security; however, a separate provision to register walk-in campers would have to be made. The entrance location on US 20 would be less beneficial to the local businesses of Beverly Shores and Pines. The group campsite would be isolated, and its traffic would not conflict with the other campers.

## IMPACTS OF ALTERNATIVE B

The soil in the western portion of the site is Maumee loamy sand, which is poorly drained and has severe limitations for construction of roads. However, within this generalized area, there is a higher and consequently better drained area that does not have as severe limitations. The 50-site RV area is located in this area. Road construction would still require special techniques such as elevation of the road with fill, but the impact would be much less than in the lower areas subject to frequent ponding. Because of the need for RV camping and the lack of suitable area elsewhere on the project site, the impact of using this specific area is considered acceptable.

Connection with the Michigan City municipal system for provision of water and sewer would require digging 4-mile-long trenches for lines. Water and sewer lines must be spaced at least 10 feet apart in separate trenches. The trenches would be dug on each side of the highway along the previously disturbed highway right-of-way. Short-term effects would be ground disturbance and temporary erosion until the vegetation recovered in the cleared areas. Some delays in traffic may occur as a result of construction activities.

The short-term costs of providing water and sewer in this alternative is higher than what is proposed in alternative A. However, the projected long-term costs are lower than alternative A. Maintenance would also be easier and less costly. NPS involvement in connecting to Michigan City water and sewer could provide a significant economic advantage to Pines and Beverly Shores in terms of improving their own water and sewer systems. This alternative does not possess the potential for underground water contamination that the other alternatives do.

As in alternative A, one entrance would provide good security. US 12 is a two-lane highway with a speed limit varying from 40 to 45 mph through Beverly Shores. The highway has been proposed for scenic road status under the jurisdiction of the National Park Service, which would limit commercial truck traffic. The existing traffic light provides a safer situation for motorists and pedestrians entering and leaving the campground. An entrance from US 12 would enhance the economic opportunities for local businesses; however, it might be more difficult to find than an entrance from US 20. Group campers would have to drive through much of the campground area, which might cause traffic conflicts.

## IMPACTS OF ALTERNATIVE C

The impacts of constructing 120 conventional sites and 4-6 walk-in sites and hooking up to the Michigan City water and sewer would be the same as those discussed in alternative B.

The 170-site RV campground would cover 17 acres. Of these, 3.7 acres would be permanently altered by roads and campsites. Nine to 10 acres of this are wetland with forested broadleaf deciduous trees and are subjected to the intrusion of temporary water and saturated water at various times of the year. No paper birch is found within this area of the wetland. Locating RV sites in this area would require fill in the wetlands and removal of trees, resulting in a 10 percent reduction in wetlands on the site. The remaining 7 acres are classified as higher and drier upland deciduous forest land that are not subjected to inundation by water.

Entrances from both US 12 and US 20 would increase the area's accessibility and would relieve lines at peak times. There is a traffic light at the US 12 entrance, and it is a slower-paced highway. An entrance/exit at US 12 could provide increased revenue for local businesses. However, the use of two entrances would increase the security problem and require more staff to operate (unless operated through a self-registration system). A through-road between US 12 and US 20 could turn into a thoroughfare. An entrance from US 12 could cause increased traffic problems in the local community. US 20 is a four-lane, high-speed highway with no turn lanes. A campground entrance here could be hazardous as in alternative A.

Group camping would be isolated, and the traffic associated with it would not conflict with other camper traffic. The proposed laundry, while a convenience for campers, would require additional capacity for water supply and sewage disposal.

The Global Resorts study predicted that it would be feasible for a concessioner to bear about half of the development costs.

## IMPACTS OF NO-ACTION ALTERNATIVE

Since the area would remain as is, there would be no cost for development. The local citizens living along the boundary of the study site and residents of Beverly Shores would not be affected by any development. The site would be allowed to return to a natural state.

The congressional mandate would not be fulfilled, and the need for additional camping facilities in the area would not be met. The site might continue to be used intermittently as a dump site unless it was fenced.

## AGENCIES AND ORGANIZATIONS CONTACTED

### FEDERAL

U.S. Fish and Wildlife Service
U.S. Soil Conservation Service

### STATE, LOCAL, AND OTHER AGENCIES

Indiana State Department of Natural Resources
Town of The Pines, Indiana
Town of Beverly Shores, Indiana

### ORGANIZATIONS

St. Anne of the Dunes Church, Father Doyle

## APPENDIX: CAMPGROUND OPERATION OPTIONS

Part of Global Resort's Campground Market Study for Indiana Dunes National Lakeshore analyzed the possibility of the campground being operated by a concessioner and the feasibility of the concessioner bearing some or all of the campground development costs.

Three options were analyzed using the same basic rationale for development and revenue generation. The plan calls for a three-year development plan at an occupancy rate of 45 percent, rising moderately to 70 percent in the seventh year.

1. Option A. The concessioner would fund the full cost of development. There would be an initial equity capital investment of $500,000, with the balance of construction funds obtained through third party financing. The total investment for the concessioner would be almost $7 million with 10 years of negative cash flow. In addition, the concessioner would pay a concession fee of 3 percent of campground revenues to the National Park Service. The conclusion is that it is unlikely that any experienced developer would be interested in such an investment.

2. Option B. The National Park Service would fund the full development cost of the campground, then contract the operation of the campground to a concessioner. The concessioner would pay a concession fee of 10 percent of campground revenues to the National Park Service. This fee would not significantly offset the cost assumed by the National Park Service. Assuming that the National Park Service is not concerned with making a profit or even breaking even, then this alternative is certainly feasible and attractive to a potential concessioner.

3. Option C. The concessioner and the National Park Service would share equally in the campground development cost. The Global Resorts study estimated a positive cash flow for the concessioner would be achieved in the seventh year. However, if the rate increases are advanced one year, which appears to be reasonable considering comparable rates at other campgrounds, a positive pre-tax cash flow would begin with the first fully operational year (year 3).

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As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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